

CLAIMS

[1] An engine valve operating system comprising a rocker arm (63) which has a cam abutting portion (65) abutting against a valve operating cam (69) and is interlocked and connected so as to apply a force in a valve opening direction to an engine valve (19) biased by a valve spring (24) in a valve closing direction, a first link arm (61) having one end turnably connected to the rocker arm (63) and the other end turnably connected at a fixed position of the engine body (10), a second link arm (62) having one end turnably connected to the rocker arm (63) and the other end turnably supported by a displaceable movable shaft (68a), driving means (72) connected to the movable shaft (68a) to enable a position of the movable shaft (68a) to be displaced in order to continuously vary the lift amount of the engine valve (19), and a rocker arm biasing spring (54) which is different from the valve spring (24) and which biases the rocker arm (63) in a direction in which the cam abutting portion (65) abuts against the valve operating cam (69).

[2] The engine valve operating system according to claim 1, wherein a roller which is the cam abutting portion (65) is axially supported by the rocker arm (63) via a connecting shaft (64) which connects one end of the first link arm (61) to the rocker arm (63), a locking pin (55) located outside a movable range of the second link arm (62) on a projection of a plane orthogonal to an axis of the movable shaft (68a) is installed on a cam holder (46) provided in the engine body (10) so as

to rotatably support a cam shaft (31) on which the valve operating cam (69) is provided, and one end of the rocker arm biasing spring (54) is engaged with the connecting shaft (64), while the other end of the rocker arm biasing spring (54) is engaged with the locking pin (55).

[3] The engine valve operating system according to claim 1, wherein the rocker arm biasing spring (54) is a coil-shaped torsion spring surrounding one of a fixed support shaft (67) and the movable shaft (68a) which turnably support the other ends of the first and second link arms (61, 62).

[4] The engine valve operating system according to claim 3, wherein the driving means (72) is connected to a control shaft (68) formed into a crank-shape and having a pair of crank webs (68b) arranged on opposite sides of the second link arm (62), the movable shaft (68a) connecting the crank webs (68b) together at right angles, and a support shaft (68c) which is connected to the crank webs (68b) at right angles at positions offset from the movable shaft (68a) and is turnably supported by the engine body (10), and a pair of the crank webs (68b) is arranged inward of a pair of the rocker arm biasing springs (54) surrounding the fixed support shaft (67) on opposite sides of the other end of the first link arm (61).

[5] The engine valve operating system according to claim 3 or claim 4, wherein a pair of support bosses (53) supporting the fixed support shaft (67) is provided in the engine body (10) so as to sandwich the other end of the first link arm (61) between the support bosses (53), and the rocker arm biasing

springs (54) are provided between the engine body (10) and the rocker arm (63) so as to surround the support bosses (53).

[6] The engine valve operating system according to claim 5, wherein a cylindrical fixed support portion (61b) is provided at the other end of the first link arm (61) so as to be turnably supported by the fixed support shaft (67), the fixed support portion (61b) having an outer periphery located inward of an outer periphery of each rocker arm biasing spring (54) as viewed laterally, and a plurality of projecting portions (56, 57) are provided at axial opposite ends of the fixed support portion (61b) at intervals in a circumferential direction so as to stick out from the axial opposite ends, in order to inhibit the rocker arm biasing springs (54) from being laid down toward the fixed support portion (61b).

[7] The engine valve operating system according to claim 6, wherein the projecting portions (56, 57) are arranged outside an operating range of the second link arm (61).